EXECUTIVE SUMMARY

The objective of the Master Plan for the Regional Irrigation Distribution System (RIDS) for the Lower West Coast Region is to develop a program to supply enough water to meet all or a portion of the projected (year 2020) urban irrigation demand associated with future growth in Lee and Collier counties. Although the area has been progressive in developing alternative supply sources including reclaimed water, these sources will not be adequate to meet future demands. Also, because many of the utilities in the study area have their own discrete infrastructure, there has been no optimization of the resource on a regional basis. Therefore, it has been determined by the South Florida Water Management District (District) that a master plan is required to evaluate these needs.

The RIDS project was one of the recommendations identified in the District's *Lower West Coast Water Supply Plan* (Water Supply Plan) completed in April 2000. The Water Supply Plan recommended the RIDS to evaluate the "feasibility of constructing regional irrigation water distribution system(s) and other options to meet the growing urban irrigation demands of this area".

The RIDS study area generally comprises the coastal area (western portion) of the Lower West Coast Region. It includes the Cities of Cape Coral, Fort Myers, and Naples, franchise areas for Florida Water Services, Gulf Environmental Services, and Bonita Springs Utilities, and unincorporated areas of Lee and Collier Counties.

Existing and future (2000 and 2020) wastewater treatment/reclamation facilities and associated infrastructure within the study area were inventoried. The inventory included:

- Existing treatment facilities and infrastructure
- Existing reclaimed water transmission infrastructure
- Current wastewater flows
- Existing reuse and disposal mechanisms and how much reclaimed water/effluent is distributed to each

There are 21 wastewater treatment plants/reclamation facilities of significance (greater than 100,000 gpd) in the study area.

To determine the amount of alternative water sources that will be necessary for future urban irrigation water, an evaluation of service area water demands was performed. The demand analysis was determined on a temporal basis for each service area. The current average demands for Collier and Lee counties respectively are approximately 18.4 and 32.5 MGD, resulting in a total study area demand of 50.9 MGD. Urban irrigation demands for the Year 2020 were projected at 153.5 MGD for Collier County and 194.5 MGD for Lee County for a total demand of 348 MGD.

Alternative sources of supply were determined to address the urban irrigation demands. Additional allocations from resources that are currently stretched, such as groundwater, will be minimized. Therefore, an inventory of potential sources of supply was conducted and prioritized to address future irrigation water needs in the study area. These potential sources of supply are:

- Reclaimed wastewater from municipal wastewater treatment plants
- Water recovered during the dry season from reclaimed water aquifer storage and recovery (ASR) systems recharged during the wet season

- Surface water from streams, rivers, abandoned borrow pits, and canal systems having salinity control structures
- Water recovered during the dry season from surface water ASR systems recharged during the wet season
- Groundwater withdrawal adjacent to surface water sources such as mining pits

These sources provided a total future flow of 213 MGD to offset potable water demands.

Subregions were developed for proposed alternatives. The five subregions are:

1. Cape Coral, Waterway Estates, and North Ft. Myers
2. Ft. Myers Central, Ft. Myers South, Gateway, and Lehigh Acres
3. GES, Fiesta Village, and Ft. Myers Beach
4. North Collier County, Pelican Bay, and Bonita Springs
5. Naples, South Collier County, and Marco Island

In order to develop a preliminary cost estimate associated with the RIDS project, the various potential projects were analyzed on a subregional basis. The costs for each subregion consider the cost of financing the initial project capital costs, including assumptions about potential grant funding, and annual operations and maintenance expenses. These costs are then divided by the expected production of irrigation water resources for the identified projects to determine the unit cost of the irrigation water resources for each subregion. In order to calculate the cost per gallon for each subregion, it was assumed that the total annual production of each project would be approximately equal to 180 days of production based on the project capacity measured on an average daily basis. As shown in the summary below, the unit cost of the irrigation water resources as identified herein range from $0.48 to $0.57 per one thousand gallons.

Summary of Total Costs by Subregion

Subregion	1	2	3	4	5
Cost per 1000 gallons	$0.48	$0.57	$0.52	$0.57	$0.56
Cost per 1000 gallons w/out grant funding	$0.87	$1.03	$0.94	$0.72	$0.67

The costs developed were developed based on funding sources pertaining to each alternative. It was determined that each alternative is eligible for several different funding options including:

- EPA Grants - $2M/Year
- District Grants - $1M/Year
- Governor's Program Grants - $500K/Year
- SRF Loan - Balance of Capital

The implementation of the RIDS program could be facilitated by a number of institutional approaches or frameworks to oversee design, construction, development, funding and operation. It was determined through consensus that individual interlocal agreements on a project-by-project basis, rather than focusing on the RIDS projects as a whole (i.e. Authority or regional utility), would be more manageable by the stakeholders.

After locating the alternatives, an environmental impact assessment was performed to determine any possible detriment to surface water bodies, wetland, and native species that may be affected through the course of developing the RIDS.

Benefits and incentives for the RIDS program are very positive in terms of additional water sources in a high growth area such as the lower west coast of Florida. Overall, the RIDS optimizes existing reclaimed water supplies, maximizes surface water use, diversifies supply sources, reduces water shortage declarations, offsets potable water usage, reduces disposal volumes, and offsets groundwater withdrawals.

Implementation of the RIDS will require additional phases to plan, design, finance and construct the improvements. Assuming Phase 1 included the Master Plan, subsequent phases include the following:

- **Phase 2 Feasibility Study** – Further study of the preferred alternative from the Master Plan to determine pipeline routes, pipe and pump sizes, specific storage locations, materials, detailed costing, detailed scheduling and a focused funding strategy.
- **Phase 3 Engineering Design** – Includes design, permitting and bidding of projects.
- **Phase 4 Construction** – Construction and startup of projects.

Project phases will be implemented on a subregional basis as developed in the RIDS Master Plan.